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Suggesting -

Pea aphid conference

February, 1938.

SUGGESTIONS FOR THE CONTROL  
OF THE PEA APHID  
IN 1938

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Prepared by a Committee of Entomologists Representing a Number  
of State Experiment Stations and the Bureau of Entomology and  
Plant Quarantine, United States Department of Agriculture.

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## FOREWORD

With the primary objectives of (1) coordinating and expediting research on the control of the pea aphid and (2) obtaining a consensus of opinion from workers engaged in pea aphid control work regarding suggestions for the control of this pest, a conference of Federal, State and commercial workers interested in the pea aphid problem was called at Atlantic City, N. J., on December 28, 1936, during the Annual Meeting of the American Association of Economic Entomologists. A total of 46 persons attended this conference which was conducted under the chairmanship of Mr. W. H. White.

After the various workers present at the conference had discussed the results obtained in control work against the pea aphid during 1936, the chairman appointed a committee to draft suggestions for the control of this insect during 1937. This committee consisted of the following:

W. P. Flint (Chairman), Illinois Natural History Survey Division.  
Hugh Glasgow, New York Agricultural Experiment Station.  
Ray Hutson, Michigan State College.  
N. F. Howard, Bureau of Entomology and Plant Quarantine.  
J. E. Dudley, Jr., Bureau of Entomology and Plant Quarantine.

The "Suggestions for Control of Pea Aphid in 1937", drafted by the Committee, were mimeographed and copies distributed to the persons attending the conference, as well as to pea growers and to pea canners.

The same committee appointed at Atlantic City, with W. P. Flint, chairman, and N. F. Howard, secretary, met at Indianapolis, Indiana, on the evening of December 27, 1937, during the Annual Meeting of the American Association of Economic Entomologists. The Committee reviewed the results obtained in pea aphid control during 1937 and drafted suggestions for the control of this insect in 1938. These suggestions, which incorporate the consensus of opinion of the men actively engaged in the pea aphid control investigations, or who were directly associated with these workers, have been mimeographed and a copy is enclosed. On the following day, December 28, these suggestions were discussed and adopted before the conference of entomologists and others interested in the pea aphid problem. A total of approximately 130 persons attended this conference, with Mr. Flint as chairman.

At the conference, the results of pea aphid control experiments during 1937 in Maryland, New Jersey, New York, Wisconsin, Michigan, Illinois and Utah, were reported upon and discussed by workers from these States and from the Bureau of Entomology and Plant Quarantine. A summary of these reports is enclosed.





December 27-28, 1937.

### Suggestions for Control of Pea Aphid in 1938.

Prepared by a Committee of Entomologists Representing a Number of the State Experiment Stations and the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

The following recommendations are based on observations and data accumulated from experimental work done east of the Rocky Mountains:

Satisfactory control of the pea aphid has been accomplished by several methods. These include, without suggestion of preference, (1) dusting, (2) use of nicotine vaporizer, and (3) spraying. Success in the use of any of these methods will depend entirely upon adequate and efficient equipment and properly timed, thorough application.

(1) Dusting with Derris or Cube: Field experiments with derris or cube dust mixtures containing talc or other suitable carriers, conditioned with a liquid spreading and wetting agent, have resulted in satisfactory control. Such dust should contain approximately 1% rotenone.

For information concerning spreading and wetting agents in sprays or dusts consult your Experiment Station Entomologist or the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture.

In applying these dusts the boom should be completely enclosed and a trailer 25 feet or more in length should be used. Dusts should be applied at the rate of 35 to 40 lbs. per acre. The speed of the machine should not exceed 3 miles per hour or 300 feet per minute. Dusting is much less effective when the wind velocity exceeds 8 to 10 miles per hour.

(2) Nicotine Dusting: For satisfactory results with nicotine dusting, it is necessary to use a trailer 100 feet long, made of gas-proofed material. Boom and nozzles should be entirely enclosed. The dust should contain approximately 4% actual nicotine. The following formula is suggested for those using a self mixing duster; hydrated lime 50 pounds, monohydrated copper sulfate 3 to 5 pounds, 40% nicotine sulfate 2 quarts.

The speed of the machine should not exceed approximately 1 mile per hour, or 100 feet per minute. The trucks used should be equipped with low-speed transmissions so that they can be driven in pea fields at the speeds mentioned. Dusting with nicotine is much less effective when the temperature drops below 65 degrees F., or when the vines are wet.

(3) Nicotine Vaporizer: Experimental data and field observations during the last two years show that this method results in a quick and positive kill. In order to obtain effective results a gas-proof trailer 100 feet long must be used, at a machine speed to give an exposure of approximately one minute.





(4) Spraying with Derris or Cube: Spraying is an effective method of control but its economic usefulness is conditioned by the nearness of an adequate water supply. On the basis of ground derris or cube root containing 4% rotenone, 3 pounds should be used per 100 gallons of water. Corresponding dilutions should be used with derris or cube containing more or less than 4% rotenone. A spreading and wetting agent, in either liquid or dry form, is necessary. The application per acre should be from 125 to 200 gallons. Pressure should be 225 to 300 pounds, and depends on size of disc apertures, type of nozzle, and pump capacity.

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It is impossible to forecast the weather conditions that largely determine the rate of increase of the aphid populations and the duration of the period of peak abundance. This makes difficult precise directions in regard to the numbers of aphids that justify beginning treatment. However, a large proportion of unsatisfactory results are traceable directly to delaying treatment until much of the damage has been done. It is believed that an infestation that is reflected by 35 aphids per sweep for an average of 5 sweeps in different parts of the field, with a standard collecting net, is usually an indication that treatment should be begun. Consult your Experiment Station Entomologist for suggestions in regard to sweeping methods.

With any of the above methods for pea aphid control, good results cannot be obtained unless the equipment is in good repair and adequate to cover the acreage in 10 days to 2 weeks.

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January 28, 1938.

Since inquiries were received regarding the definition of "sweep \* \* \* with a standard collecting net" which appears in the next to the last paragraph of the preceding suggestions, the Committee has authorized the following Supplement:

Supplement

A sweep with an insect net (11 to 14 inches in diameter) is defined as a single rapid stroke in which the peas actually hit constitute one-third of a circle, or an arc of 120 degrees. The unit for determining the infestation in one part of a field is five of these single sweeps. The stroke should be rapid in order to knock off into the net a large proportion of the aphids present and yet not damage the pea vines.

When pea vines are wet with dew or rain, a very small proportion of the aphids present can be caught in the net. When the temperature is low, and particularly if a cold wind is blowing, aphids have a tendency to cling to the vines, and again a small proportion of those present can be collected. When the weather is hot, humid, and still, frequently a large proportion of the aphids fall readily into the net as it passes through the peas. When there is a heavy stand of succulent vines in blossom or in pod, it is frequently impossible to make a rapid stroke covering more than one-eighth of a circle.

